

## CLAIMS

What is claimed is:

1. Apparatus for facilitating emulation of a radio channel formed between a sending station and a receiving station, the receiving station positioned at a selected reception location, said apparatus comprising:  
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a channel impulse response estimator adapted to receive communication indicia associated with the radio channel, said channel impulse response estimator for forming an estimate of a channel impulse response of the radio channel, the channel impulse response estimate formed of a combination of at least a first non-diffuse component and at least a first diffuse component.  
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2. The apparatus of claim 1 further comprising a signal applicator, said signal applicator for applying an application signal to said channel impulse response estimator, the application signal representative of a send signal sent by the sending station to the receiving station upon the radio channel.
- 15 3. The apparatus of claim 2 further comprising a signal detector adapted to receive indications of the application signal, subsequent to application to said channel impulse response estimator, the application signal representative of the send signal, sent upon the radio channel and delivered to the receiving station.
4. The apparatus of claim 1 wherein the communication indicia to which said channel impulse response estimator is adapted to receive comprise communication path parameter indicia.  
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5. The apparatus of claim 4 wherein the estimate of the channel formed by said channel impulse response estimator comprises a multipath profile estimative of the radio channel.
- 25 6. The apparatus of claim 5 wherein the multipath profile forming the estimate of the channel formed by said channel impulse response estimator comprises a first path and at least a second path, the second path delayed by at least a first selected delay period.

7. The apparatus of claim 6 wherein the first and at least second paths of the multipath profile forming the estimate of the channel defined by said channel impulse response estimator each comprise non-diffuse components.

8. The apparatus of claim 7 wherein the first path of the multipath profile  
5 comprises the first non-diffuse component and wherein the second path of the multipath profile comprises a second non-diffuse component.

9. The apparatus of claim 8 wherein the first path of the multipath profile comprises the first diffuse component and wherein the second path of the multipath profile comprises a second diffuse component.

10. The apparatus of claim 1 wherein the first diffuse component of which the  
10 channel impulse response estimate is formed comprises a representation of a combination of diffusely-propagated parts, propagated responsive to propagation to the first non-diffuse component.

11. The apparatus of claim 1 wherein the sending station comprises a first  
15 sending station and a second sending station, wherein the radio channel comprises a first radio channel part and a second radio channel part, the first radio channel part extending between the first sending station and the receiving station and the second radio channel part extending between the second sending station and the receiving station, the estimate formed by said channel impulse response estimator of both the first and second radio  
20 channel parts.

12. The apparatus of claim 1 wherein the first diffuse component comprises a statistical representation.

13. A method for facilitating emulation of a radio channel formed between a sending station and receiving station positioned at a selected reception location, aid method comprising the operations of:

forming an estimate of a channel impulse response of the radio channel responsive to communication indicia associated with the radio channel, the estimate of the channel impulse response formed of a combination of at least a first non-diffuse component and at least a first diffuse component; and

using the estimate to emulate the radio channel.

14. The method of claim 13 wherein said operation of forming comprises forming a multipath profile estimative of the radio channel.

15. The method of claim 14 wherein the multipath profile formed during said operation of estimating comprises a first path and at least a second path, the second path delayed by at least a first selected delay period.

16. The method of claim 15 wherein the first and at least second paths formed during said operation of forming the multipath profile each comprise non-diffuse components.

17. The method of claim 16 wherein the first and at least second paths formed during said operation of forming the multipath profile each comprise diffuse components.

18. The method of claim 13 wherein the at least first diffuse component of which the estimate of the channel impulse is, in combination, formed during said operation of forming is based upon a statistical representation.

19. The method of claim 13 further comprising the operation of applying send signals to the estimate formed during said operation.

20. The method of claim 19 further comprising the operation of positioning the receiving station to receive the send signal, once applied to the estimate formed during said operation of forming, and performing link trilateration operations at the receiving station.